SENSITIVE PRESSURE ALTIMETER

Manual of
Installation
Operation
Service
Overhaul Instructions
Parts List

PART NUMBER UI-5934-SERIES

UNITED INSTRUMENTS, INCORPORATED

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MANUAL No. 5934

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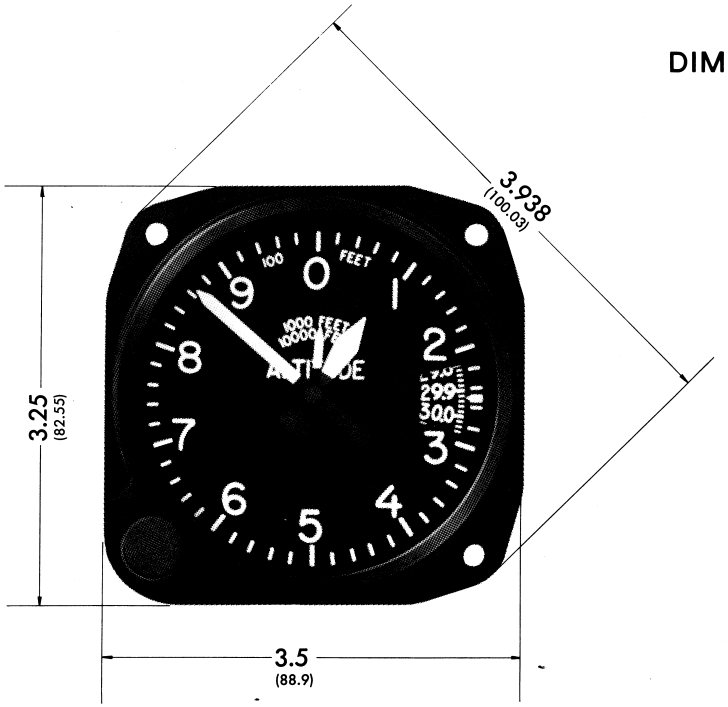
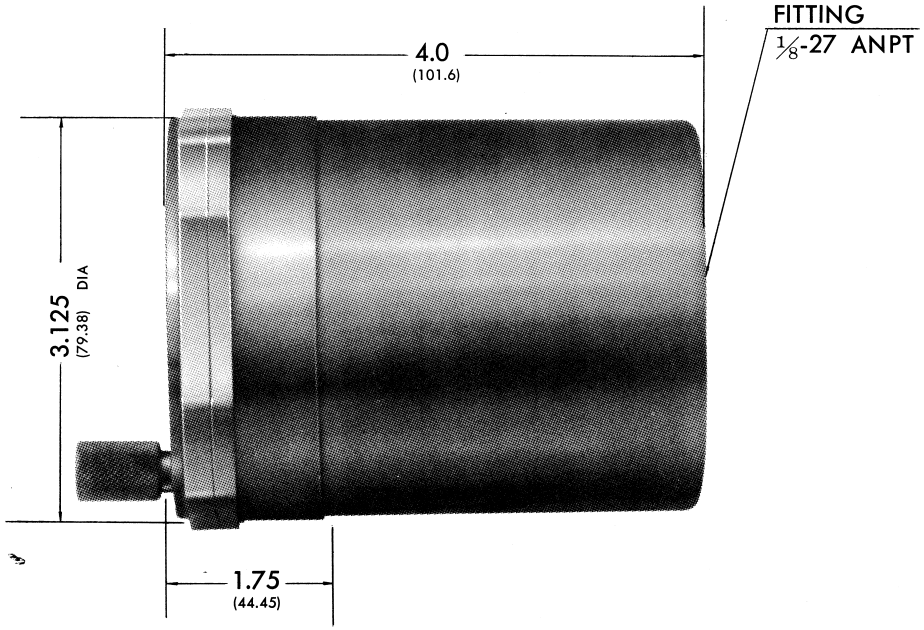
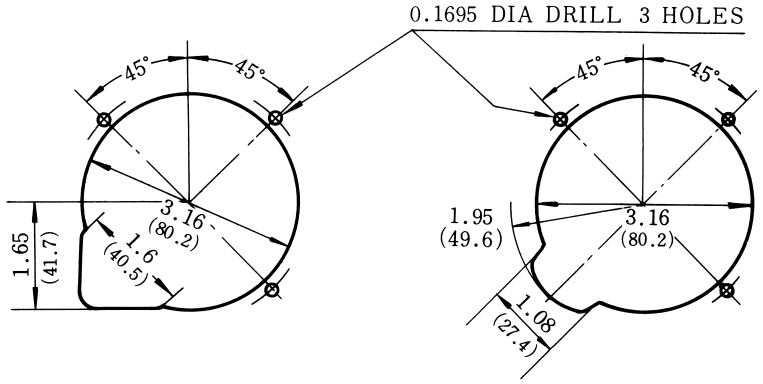


UI—5934
UI—5934A

UI—5934PM
UI—5934PAM





FRONT MOUNTING REAR MOUNTING
PANEL CUT-OUT DIMENSIONS

Dimensions in inches (mm)

SECTION 1: INTRODUCTION

INTRODUCTION

This specification applies to the overhaul work for the following altimeters supplied by United Instruments, Inc.

Altimeter, P/N 5934 Series

PURPOSE

This specification is to provide maintenance procedures and parts identification for Instrument Technicians thoroughly familiar with Altimeter operating principles and overhaul techniques.

GENERAL DESCRIPTION

The sensitive altimeter is for use on aircraft to indicate the height of the aircraft above a reference point, generally mean sea level, assuming standard conditions of temperature and pressure.

The altimeter measures the existing barometric pressure. Since atmospheric pressure varies with altitude, this pressure is indicated on the dial in feet of altitude. The altimeter may be manually adjusted to variances in barometric pressure.

PRODUCT DESCRIPTION

ALTITUDE SCALE

Operating Range:	–1,000 to 20,000 feet –1,000 to 35,000 feet
Smallest Increment:	20 feet
Number of Pointers:	3 pointers
Barometric Settings:	28.1 to 31.0 inches Hg. 946 to 1050 Millibars
Dial and Pointer Finish:	Lusterless white on dull black background
Typical Weight:	13 ounces approx.
Mounting:	Flange
Static Pressure Conn:	1/8–27 ANPT
Installation:	With removable spring nuts and screws
Environmental:	Temperature: –55°C to +70°C Vibration: 8.333 to 120 Hz (Max. amplitude & max. accel.) Humidity: 95% maximum

PART NUMBER AND RANGE

UI 5934P Altimeter	
Indicating Range:	–1,000 to 20,000 ft. 2 pointers and 1 disk pointer
Atmospheric Pressure Scale:	28.1 to 31 in.Hg
UI 5934 Altimeter	
Indicating Range:	–1,000 to 20,000 ft. 3 pointers
Atmospheric Pressure Scale:	28.1 to 31 in.Hg
UI 5934A Altimeter	
Indicating Range:	–1,000 to 35,000 ft. 3 pointers
Atmospheric Pressure Scale:	28.1 to 31 in.Hg
UI 5934PA Altimeter	
Indicating Range:	–1,000 to 35,000 ft. 2 pointers and 1 disk pointer
Atmospheric Pressure Scale:	28.1 to 31 in.Hg

UI 5934PM Altimeter	
Indicating Range:	–1,000 to 20,000 ft. 2 pointers and 1 disk pointer
Atmospheric Pressure Scale:	946 to 1050 Millibars
UI 5934M Altimeter	
Indicating Range:	–1,000 to 20,000 ft. 3 pointers
Atmospheric Pressure Scale:	946 to 1050 Millibars
UI 5934AM Altimeter	
Indicating Range:	–1,000 to 35,000 ft. 3 pointers
Atmospheric Pressure Scale:	946 to 1050 Millibars
UI 5934PAM Altimeter	
Indicating Range:	–1,000 to 35,000 ft. 2 pointers and 1 disk pointer
Atmospheric Pressure Scale:	946 to 1050 Millibars

INSTALLATION

The altimeter is grouped with the other flight instruments. It is mounted so that zero on the dial is on the top side. To mount the altimeter, cut a hole in the instrument panel and drill three screw-holes as shown in the Outline Drawing in this manual.

Clean the threads of the pressure openings and apply a suitable sealing compound.

If the altimeter is to be mounted from the rear of the panel, locate it in the rear mounting hole.

Secure it to the panel with the three screws and removable spring nuts and connect the altimeter to the static pressure line.

If the altimeter is to be mounted from the front of the panel, locate it in the front mounting hole.

Secure it to the panel and connect it to the static pressure line. After connection of the altimeter to the static sources, the static system should be tested for leaks.

OPERATION

The atmosphere surrounding the earth exerts a pressure due to its weight. This pressure is greatest at sea level (the standard reference point) or points below sea level, but decreases as altitude is increased. Due to meteorological variations, the atmospheric pressure varies over the surface of the earth and over a period of time at a particular location.

The altimeter is operated because of the changes in pressure. When installed in an airplane, the airtight case is connected to the free air in such a way as to transmit the static pressure to the inside of the case.

As pressure in the case decreases with increase in altitude, the forces acting on the diaphragm assembly decrease.

The motion of the diaphragm assembly is transmitted to the mechanism assembly and converts to movement of the pointers indicating altitude in feet on the dial.

SECTION II: OVERHAUL

SPECIAL TOOLS

There are no special tools or test equipment required for overhaul of the altimeter.

DISASSEMBLY

The order of disassembly will correspond with the figure and index number associated with each illustrated parts breakdown.

Removal of Mechanism from the Case (See Fig. 1.)

a. Loosen the locknut (33), remove knob (34) and locknut (33).

b. Unscrew the locking stud screw (28), which is located to the left of the adjustment knob stem (5) until the head clears the bezel (29), then push the locking stud screw (28) to the left to disengage the locking stud (27) from the recess of the adjustment knob stem (5).

c. Loosen each of the screws (31, 32) one-half turn evenly, relieve the tension on the glass (25), then remove the screws (31, 32) and lockwashers (30), lift off the bezel (29), paper gasket (26), glass (25) and sealing gasket (24).

d. Lift off the locking stud (27) and locking stud screw (28).

e. With a suitable hand remover remove the large hand assembly (22), the intermediate hand assembly (21) and the disk (small) pointer (20).

f. Remove the ring (23) from the case assembly (1). Remove the screws (19), lift off the dial (18), spacer (17), barometric dial and gear assembly (16), gear assembly (11), wheel assembly (12), and spacer (13).

g. Unfasten the retaining bar (15), remove the ring (14), lift out the plate assembly (10), mechanism assembly (9), spring ring (8) and snap ring (7).

CAUTION:

Do not disassemble the name plate (36), snap ring (3), pin (6), gasket (4) adjustment stem (5) and pinion (2) from the case assembly (1) as shown.

Disassembly of Top Mechanism (See Fig. 2.)

Loosen the screws (3), remove the wheel assembly (2) from the plate assembly (1).

Disassembly of Mechanism (See Fig. 3.)

a. Take out the taper pin (8), loosen the three screws (9) and remove the bridge assembly (7), wheel and hairspring assembly (3).

CAUTION:

Do not disassemble the wheel and hairspring assembly (3) as shown, unless there is damage to the hairspring (6) and disk (5).

b. Loosen the diaphragm mounting screw (34) in the mechanism body (1), pull out the spring (37) and washer (35), then lift the diaphragm assembly (29) and remove.

Care must be taken not to damage any parts of the diaphragm assembly.

c. Loosen the balance assembly tightening screw (26), take out the bearing pin (24) and remove the balance plate assembly (21).

d. Remove the center pinion (38) from the handstaff pinion (18), loosen the setting assembly tightening screw and remove the setting assembly (19) and the handstaff pinion (18).

e. Loosen the screw pivot (17), move the rocking and sector assembly (11) toward the pivot screw (17) and then remove it from the body. Care must be taken not to defect any parts of the shaft assembly.

f. Remove the spring (37), washer (35), link (36) and arm (25) from the rocking and sector assembly (11).

CAUTION:

Do not disassemble the rocking shaft and sector assembly (11) into the compensator assembly (14) and shaft assembly (12) except when necessary.

g. Loosen the screw (10) from the body assembly (1) and disassemble the setting assembly (2) and screw (10).

CLEANING

a. All parts should be cleaned in cleaning solution.

b. All jewels and bearings are cleaned by rotating sharpened end of a pegwood stick in the centers.

c. All pivots and handstaff should be cleaned by a piece of pithwood with lapping compound.

d. Examine pivots for burrs or scratches.

e. Inspect painting for markings of the dial and pointers.

REPAIR OR REPLACEMENT

a. When the sealing gasket is removed, the gasket must be replaced with a new one.

b. Replace diaphragm assembly if any leakage or deformation of the diaphragm is discovered.

c. If cracks, chips or other damage of jewels are recognized, jewel assembly must be replaced.

d. Check alignment of hairspring to its collet.

e. Replace the handstaff pinion if it is not straight.

f. Replace the shaft assembly when the sector gear teeth or pivot of the sector shaft is broken.

g. If white paint of dial markings or pointers has become discolored or cracked, white markings of the dial of pointers must be repainted.

h. The bearing pin (24) must be replaced whenever it is disassembled.

LUBRICATION

No lubrication of the altimeter is required.

REASSEMBLY AND CALIBRATION

The reassembly procedure is generally the reverse of disassembly. Make reference to illustrated parts breakdown.

Reassembly of the Mechanism (See Fig. 3).

a. Mount the setting assembly (2) to the body assembly (1) with screw (10).

b. Reassemble the washer (35), link (36) and spring (37) into the rocking and sector assembly (11) and fasten it to the body assembly (1) with the pivot screw (17).

c. Assemble the wheel and hairspring assembly (3) to the setting assembly of the body and place the bridge assembly (7), then secure them with three screws (9) and insert the hairspring pin (8). Set the hairspring so it is level to the bridge assembly (7).

d. Insert the handstaff pinion (18) into the setting assembly of the mechanism body assembly and press the center pinion (38) into the pinion (18), then secure the setting assembly with the setting tightening screw.

e. Insert a new bearing pin (24) into the link of balance assembly and secure the balance assembly with the screw.

CAUTION:

a. Adjust all end play of the rotating parts from 0.05 to 0.08 mm. (0.002 to 0.003 inches)

b. Apply to 2 1/2 turn tension to hairspring of wheel and hairspring assembly (3).

f. Carefully place the diaphragm assembly (29) into the body. Position the diaphragm so the link move smoothly and insert the bearing pin to the link with cone washers (35) and spring (37).

Reassembly of Top Mechanism (See Fig. 2.)

CAUTION:

Make sure that all shafts are held securely in the respective shaft holes of the plate assembly before tightening the screw (3).

CALIBRATION

a. Mount the dial (18) and large hand assembly (22) to the mechanism body assembly and set the pointer to indicate zero, note indication in normal operating position after tapping. Turn the instrument to various positions, tapping and noting these readings, move the sector counter weight to correct excessive error. Indication shall not exceed 20 feet.

b. Place the instrument in a suitable vacuum chamber. Mount the pointer to indicate the prevailing ambient pressure. Close vacuum chamber and adjust pressure to bring indication on the master barometer to zero altitude. The pointer being calibrated should indicate zero.

c. Slowly decrease pressure to 10,000 feet, a plus or minus indication is corrected by altering the effective length of calibration arm. Moving arm out will correct a plus error, moving in correct a minus error.

d. After instrument is calibrated for 10,000 feet, slowly reduce pressure to 20,000 feet and record indication. Necessary adjustment for correction at the range of high altitude is accomplished by shifting the diaphragm. To correct for a plus error move diaphragm out (away from rocking shaft), for minus error move inward.

e. Subject the instrument to test pressure listed in Table I. Subsequent adjustment should be made as necessary to satisfy the tolerances listed in Table I.

CAUTION:

When performing calibration tests, watch for sticking or spinning of pointer which may indicate excessive friction. If the friction error is beyond the tolerance values of Table III, check that the shafts are having no excessive friction and that the gears are fitting one another properly. Polish shafts or let gears fit better as the occasion may demand.

Temperature Compensation

Unless there is damage to the bimetal part of the diaphragm assembly, there is no need for temperature compensation. If necessary, however, proceed as follows:

a. After finishing the mechanism calibration, put the mechanism directly in a low-temperature (–30°C) tank. The pointer shall be set to zero.

b. After keeping it at –30°C for 30 minutes, check that the pointer indication is less than +15 feet and –30 feet. If the indication is in excess of the tolerance values of +15 feet and –30 feet, adjust the bimetal part of the diaphragm assembly until the indication enters the tolerance values.

c. After completing the temperature compensation, recheck the scale error. If it exceeds the tolerance values of Table I, repeat calibration steps b. ~ e.

CAUTION:
Do not take out the mechanism body assembly directly from the −30°C tank to the room temperature. Be sure to raise the internal temperature of the tank to +70°C and make sure that the temperature of the mechanism body assembly is higher than the room temperature. Thereafter, take out the mechanism body assembly.

Casing (See Fig. 1.)

a. Insert the snap ring (7), spring ring (8), assemble the mechanism assembly (9) and top plate assembly (10) in the case assembly (1).

b. Replace top plate snap ring (14), snap in the retaining bar (15), assemble barometric dial and gear assembly (16), spacer (17) and dial (18), then secure dial with the dial screws (19).

   Replace the gasket ring (23) to the case assembly (1).

c. Replace the disc (small) pointer (20), intermediate hand assembly (22). Correct position and operating clearance.

d. Replace the locking stud (27), screw (28) and the sealing gasket (24).

e. Clean and replace the glass (25), then replace the paper gasket (26) and bezel (29) on the glass (25).

f. Replace the lockwasher (30) and screws (31, 32) to hold the bezel (29) to the case, then secure the screws (31, 32).

g. Replace the locknut (33) and the knob (34) on the adjustment knob stem.

h. Adjust barometric dial assembly to read 29.92 inches of mercury with pointers indicating prevailing atmospheric pressure.

SECTION III: TEST PROCEDURE

3-1 VISUAL EXAMINATION

Inspect each instrument for appearance of case, chips or cracks, burred or loose screws, appearance of dial and pointer, position of pointer with respect to the prevailing atmospheric pressure, cleanliness, and condition of cover glass.

3-2 INDIVIDUAL TESTS

3-3 GENERAL

Unless otherwise specified the instrument shall be tested in normal operating position and shall be lightly vibrated or tapped before a test reading is taken.

3-4 CASE LEAKAGE

A vacuum sufficient to produce a change or reading of the pointer of approximately 18,000 feet shall be slowly applied to the static pressure connection of the altimeter, at which point the connection tubing shall be pinched off or otherwise completely sealed. The change in reading after 1 minute shall not exceed 100 feet.

3-5 SCALE ERROR AT ROOM TEMPERATURE

With the barometric pressure scale at 29.92 inches of mercury or 1013 mb, the altimeter shall be subjected successively to pressure corresponding to the altitude specified in Table I up to the maximum normally expected operating altitude of the airplane in which the altimeter is to be installed. The reduction in pressure shall be made at a rate not in excess of 20,000 feet per minute to within approximately 2,000 feet of the test point. The test point shall be approached at a rate compatible with the test equipment. The altimeter shall be kept at the pressure corresponding to each test point for at least 1 minute, but not more than 10 minutes, before a reading is taken. The error at all test points must not exceed the tolerances specified in Table I.

3-6 HYSTERESIS

The hysteresis test shall begin not more than 15 minutes after the altimeter's initial exposure to the pressure corresponding to the upper limit of the scale error test prescribed in subparagraph 3-5, and while the altimeter is at this pressure, the hysteresis test shall commence. Pressure shall be increased at a rate simulating a descent in altitude at approximately (but not exceeding) 20,000 feet per minute until within 3,000 feet of the first test point (50 percent of maximum altitude). The test point shall then be approached at a rate of approximately 3,000 feet per minute. The altimeter shall be kept at this pressure for at least 5 minutes, but not more than 15 minutes, before the test reading is taken. After the reading has been taken, the pressure shall be increased further, in the same manner as before, until the pressure corresponding to the second test point (40 percent of maximum altitude) is reached. The altimeter shall be kept at this pressure for at least 1 minute, but not more than 10 minutes, before the test reading is taken. After the reading has been taken, the pressure shall be increased further, in the same manner as before, until atmospheric pressure is reached. The reading of the altimeter at either of the two test points shall not differ by more than the tolerance specified in Table II from the reading of the altimeter for the corresponding altitude recorded during the scale error test prescribed in subparagraph 3-5.

TABLE I

(Ref. U.S. Standard Atmosphere, 1962)
Altitude VS. Pressure

ALTITUDE (FEET)	EQUIVALENT PRESSURE (INCHES OF MERCURY)	TOLERANCES (±FEET)
−1,000	31.018	20
0	29.921	20
500	29.384	20
1,000	28.855	20
1,500	28.334	25
2,000	27.821	30
3,000	26.816	30
4,000	25.841	35
6,000	23.978	40
8,000	22.224	60
10,000	20.576	80
12,000	19.029	90
14,000	17.577	100
16,000	16.216	110
18,000	14.942	120
20,000	13.750	130
*22,000	12.636	140
*25,000	11.103	155
*30,000	8.885	180
*35,000	7.040	205

Note : The asterisks are not applied for P/N 5934, 5934M 5934P, and 5934PM.

3-7 AFTER EFFECT

Not more than 5 minutes after the completion of the hysteresis test prescribed in subparagraph 3-6, the reading of the altimeter (corrected for any change in atmospheric pressure) shall not differ from the original atmospheric pressure reading by more than the tolerance specified in Table II.

3-8 FRICTION ERROR

The altimeter shall be subjected to a steady rate of decrease of pressure approximately 750 feet per minute. At each altitude listed in Table III, the change in reading of the pointers after vibration shall not exceed the corresponding tolerances listed in Table III.

3-9 CASE LEAK

The leakage of the altimeter case, when the pressure within it corresponds to an altitude of 18,000 feet, shall not change the altimeter reading by more than the tolerance shown in Table II during an interval of 1 minute.

3-10 BAROMETRIC SCALE ERROR

At constant atmospheric pressure, the barometric pressure scale shall be set at each of the pressure (falling within its range of adjustment) that are listed in Table IV, and shall cause the pointer to indicate the equivalent altitude difference shown in Table IV with a tolerance of ±25 feet.

3-11 POSITION ERROR

The altimeter reading shall be taken while it is held in any desired position and while it is being tapped. This reading shall not differ from its reading when held in any other position by more than ±20 feet.

TABLE II

TEST TOLERANCES

TEST	TOLERANCES (±FEET)
Case Leak Test	100
Hysteresis Test: First Test Point (50 percent of maximum altitude)	75
Second Test Point (40 percent of maximum altitude)	75
After Effect Test	30

TABLE III

FRICTION

ALTITUDE(FEET)	TOLERANCES(±FEET)
1,000	70
2,000	70
3,000	70
4,000	70
5,000	70
10,000	80
15,000	90
20,000	100
*25,000	120
*30,000	140
*35,000	160

Note : The asterisks are not applied for P/N 5934, 5934M, 5934P, and 5934PM.

TABLE IV

PRESSURE-ALTITUDE DIFFERENCE

PRESSURE (INCHES OF HG)	PRESSURE (MILLIBAR)	ALTITUDE DIFFERENCE (FEET)
28.10	951.57	−1727
28.50	965.12	−1340
29.00	982.05	− 863
29.50	998.98	− 392
29.92	1013.12	0
30.06	1017.95	+ 129
30.50	1032.85	+ 531
30.90	1046.39	+ 893
30.99	1049.44	+ 974

SECTION IV: TROUBLE SHOOTING

TROUBLE	PROBABLE CAUSE	REMEDY
Indicator	Defective	Replace
Inoperative	Indicator	Indicator
Pointers fail	Static Pressure	Disconnect line and determine cause. Blow line, clean if necessary.
Indicator has indicating error	(1) Shifting of parts due to shock	(1) Attempt to correct by resetting barometric scale. If this does not remedy, replace indicator.
	(2) Leaks in case or tubing	(2) Check for leaks
Friction	(1) Dirty pivots or jewels	(1) Disassemble and clean
	(2) Cracked jewel	(2) Replace jewel
	(3) Insufficient end play	(3) Reset end play
	(4) Links binding, not aligned correctly	(4) Disassemble and adjust
Case leaks	Dried out sealing gaskets	Replace gaskets
Pointer oscillates	(1) Insufficient hairspring tension	(1) Increase hairspring
	(2) Insufficient engagement of gears	(2) Re-adjustment of gears

SECTION V: PARTS CATALOG

5-1 INTRODUCTION

This parts catalog describes the group assembly parts lists of 5934 Series altimeters supplied by United Instruments, Inc.

5-2 GROUP ASSEMBLY PARTS LIST

The group assembly parts list describes the parts assemblies and parts of the altimeter in the order they are disassembled. Attaching parts, however, are expressed as "attaching parts" immediately after parts assemblies or parts to which they are attached. Furthermore, they are marked off by GRAY BARS for discrimination from parts assemblies or parts which follow them.

5-3 PART NUMBERS

Detailed specifications for the standard parts and specially procured parts are given in the DESCRIPTION column.

5-4 FIGURE NUMBER

A figure number shows the number of disassembly drawing under which the parts appear. Figure numbers appear on the left stage of the index number column.

5-5 INDEX NUMBER

Index numbers refer to numbers to find the parts illustrated in the disassembly drawings.

5-6 DESCRIPTION

The description column describes the nomenclatures of parts designated by the manufacturers. A complete assembly is indicated with (•), its parts and intermediate assembly parts with (••), and components of intermediate assembly parts and subassemblies thusly, (•••).

5-7 UNITS PER ASSEMBLY

This column describes the units per main, intermediate or subassembly. The letters "NP" denote availability not as parts but as the next higher order assembly. The letters "AR" stand for parts to be used if necessary. The letters "REF" stand for parts already listed.

5-8 USABLE ON CODE

This column is used when more than one type of altimeters is described. A classification code is set for each type, and the types of altimeters in which the parts are used are shown.

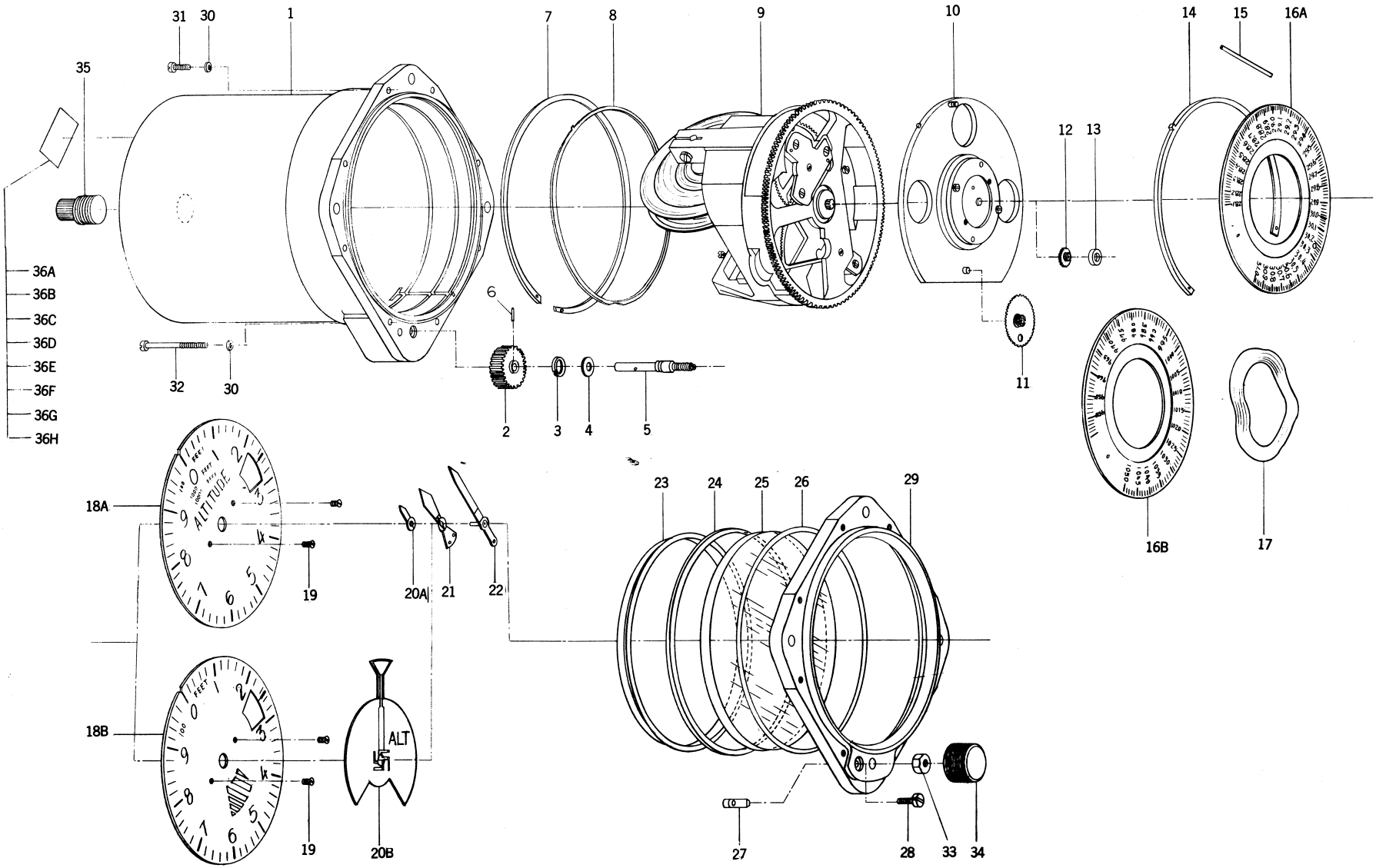


Figure 1 SENSITIVE PRESSURE ALTIMETER

PARTS LIST

FIGURE AND INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSEMBLY AND USABLE ON CODE							
			A	B	C	D	E	F	G	H
1		FIGURE 1								
	5934A	SENSITIVE PRESSURE ALTIMETER 0~35,000 feet, 3 POINTERS	1							
	5934	SENSITIVE PRESSURE ALTIMETER 0~20,000 feet, 3 POINTERS		1						
	5934AM	SENSITIVE PRESSURE ALTIMETER 0~35,000 feet, 3 POINTERS			1					
	5934M	SENSITIVE PRESSURE ALTIMETER 0~20,000 feet, 3 POINTERS				1				
	5934PA	SENSITIVE PRESSURE ALTIMETER 0~35,000 feet, 2 POINTERS AND 1 DISK POINTER					1			
	5934P	SENSITIVE PRESSURE ALTIMETER 0~20,000 feet, 2 POINTERS AND 1 DISK POINTER						1		
	5934PAM	SENSITIVE PRESSURE ALTIMETER 0~35,000 feet, 2 POINTERS AND 1 DISK POINTER							1	
	5934PM	SENSITIVE PRESSURE ALTIMETER 0~20,000 feet, 2 POINTERS AND 1 DISK POINTER								1
1-1	34-1-1	● CASE ASSEMBLY	1	1	1	1	1	1	1	1
1-2	34-1-2	● PINION, Stem	1	1	1	1	1	1	1	1
1-3	34-1-3	● RING, Snap	1	1	1	1	1	1	1	1
1-4	34-1-4	● GASKET, "O" Ring	1	1	1	1	1	1	1	1
1-5	34-1-5	● STEM, Adjustment	1	1	1	1	1	1	1	1
1-6	34-1-6	● PIN	1	1	1	1	1	1	1	1
1-7	34-1-7	● RING, Snap	1	1	1	1	1	1	1	1
1-8	34-1-8	● RING, Spring	1	1	1	1	1	1	1	1
1-9	34-1-9	● MECHANISM ASSEMBLY, Body (Refer to Fig 3)	1	1	1	1	1	1	1	1
1-10	34-1-10	● PLATE ASSEMBLY, Top Mechanism (Refer to Fig 2)	1	1	1	1	1	1	1	1
1-11	34-1-11	● GEAR ASSEMBLY, Barometric Dial Drive	1	1	1	1	1	1	1	1
1-12	34-1-12	● WHEEL ASSEMBLY, Small Hand	1	1	1	1	1	1	1	1
1-13	34-1-13	● SPACER	1	1	1	1	1	1	1	1
1-14	34-1-14	● RING, Top Plate	1	1	1	1	1	1	1	1
1-15	34-1-15	● BAR, Retaining	1	1	1	1	1	1	1	1
1-16A	34-1-16A	● DIAL AND GEAR ASSEMBLY	1	1			1	1		
1-16B	34-1-16B	● DIAL AND GEAR ASSEMBLY			1	1			1	1
1-17	34-1-17	● SPACER	1	1	1	1	1	1	1	1
1-18A	34-1-18A	● DIAL	1	1	1	1				
1-18B	34-1-18B	● DIAL (Attaching Part)					1	1	1	1

PARTS LIST

FIGURE AND INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSEMBLY AND USABLE ON CODE							
			A	B	C	D	E	F	G	H
1-19	34-1-19	SCREW	2	2	2	2	2	2	2	2
1-20A	34-1-20A	POINTER, Small	1	1	1	1				
1-20B	34-1-20B	POINTER, Disk					1	1	1	1
1-21	34-1-21	HAND ASSEMBLY, Intermediate	1	1	1	1	1	1	1	1
1-22	34-1-22	HAND ASSEMBLY, Large	1	1	1	1	1	1	1	1
1-23	34-1-23	RING, Gasket	1	1	1	1	1	1	1	1
1-24	34-1-24	GASKET, Sealing	1	1	1	1	1	1	1	1
1-25	34-1-25	GLASS, Cover	1	1	1	1	1	1	1	1
1-26	34-1-26	GASKET, Paper	AR	AR	AR	AR	AR	AR	AR	AR
1-27	34-1-27	STUD, Locking	1	1	1	1	1	1	1	1
1-28	34-1-28	SCREW, Locking Stud	1	1	1	1	1	1	1	1
1-29	34-1-29	BEZEL	1	1	1	1	1	1	1	1
1-30	34-1-30	LOCKWASHER	8	8	8	8	8	8	8	8
1-31	34-1-31	SCREW	6	6	6	6	6	6	6	6
1-32	34-1-32	SCREW	2	2	2	2	2	2	2	2
1-33	34-1-33	LOCK NUT, Knob	1	1	1	1	1	1	1	1
1-34	34-1-34	KNOB	1	1	1	1	1	1	1	1
1-35	34-1-35	PLUG	1	1	1	1	1	1	1	1
1-36A	34-1-36A	PLATE, Identification	1							
1-36B	34-1-36B	PLATE, Identification		1						
1-36C	34-1-36C	PLATE, Identification			1					
1-36D	34-1-36D	PLATE, Identification				1				
1-36E	34-1-36E	PLATE, Identification					1			
1-36F	34-1-36F	PLATE, Identification						1		
1-36G	34-1-36G	PLATE, Identification							1	
1-36H	34-1-36H	PLATE, Identification								1

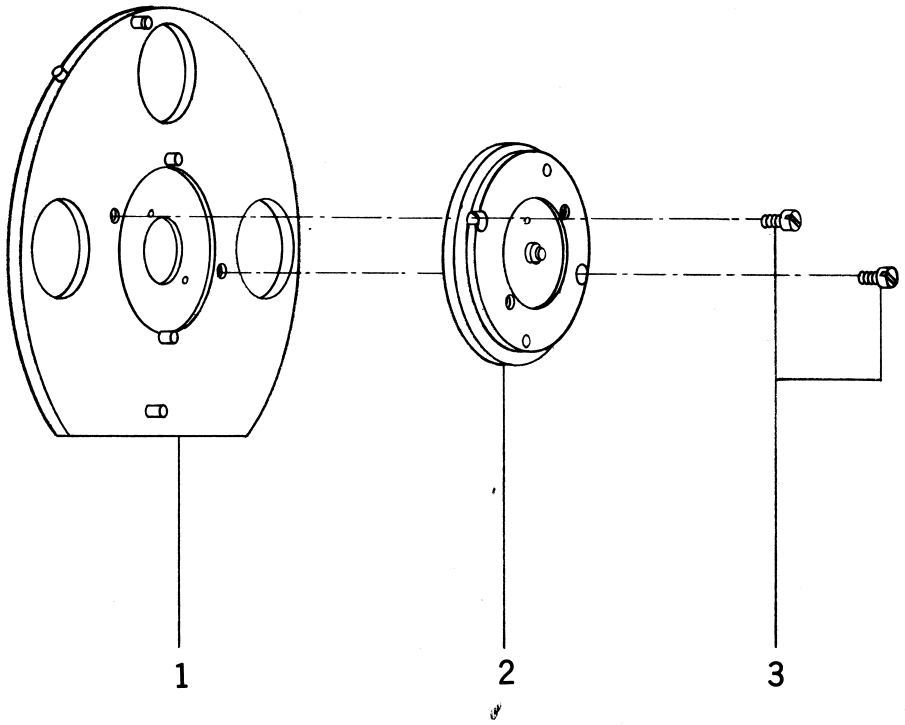


Figure 2 PLATE ASSEMBLY, TOP MECHANISM

PARTS LIST

FIGURE AND INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSEMBLY AND USABLE ON CODE							
			A	B	C	D	E	F	G	H
		FIGURE 2								
2	34-2	● PLATE ASSEMBLY, Top Mechanism	1	1	1	1	1	1	1	1
2-1	34-2-1	●● PLATE ASSEMBLY (With Pins)	1	1	1	1	1	1	1	1
2-2	34-2-2	●● WHEEL ASSEMBLY, Intermediate (Attaching Part)	1	1	1	1	1	1	1	1
2-3	34-2-3	●● SCREW, Bearing Plate	2	2	2	2	2	2	2	2

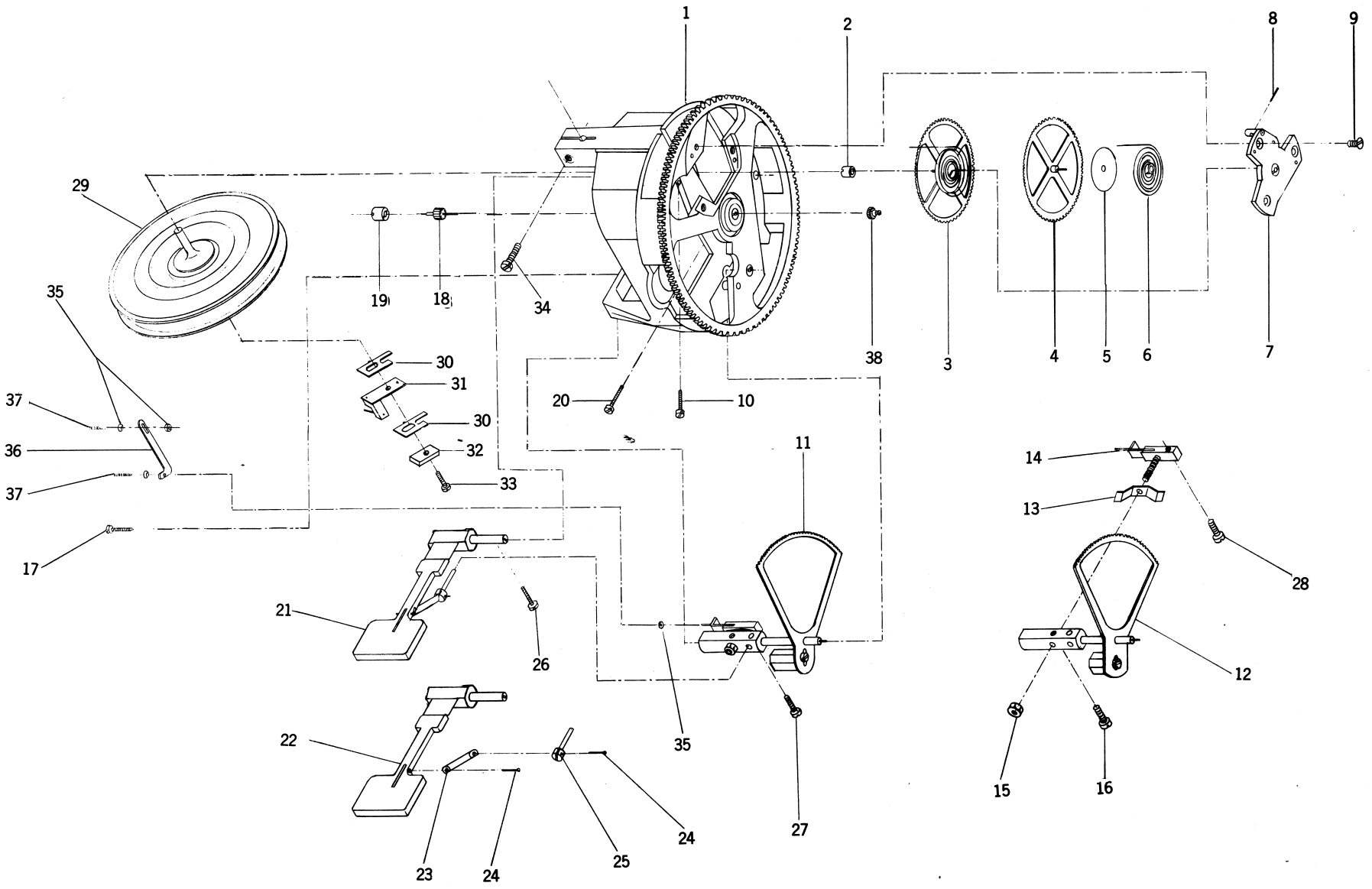


Figure 3 MECHANISM ASSEMBLY BODY

PARTS LIST

FIGURE AND INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSEMBLY AND USABLE ON CODE							
			A	B	C	D	E	F	G	H
		FIGURE 3								
3	34-3	● MECHANISM ASSEMBLY, Body	1	1	1	1	1	1	1	1
3-1	34-3-1	●● BODY ASSEMBLY (With Scotch Tape, Bush and Jewel)	1	1	1	1	1	1	1	1
3-2	34-3-2	●● SETTING ASSEMBLY, Handstaff Jewel	1	1	1	1	1	1	1	1
3-3	34-3-3	●● WHEEL AND HAIRSPRING ASSEMBLY	1	1	1	1	1	1	1	1
3-4	34-3-4	●●● WHEEL ASSEMBLY	1	1	1	1	1	1	1	1
3-5	34-3-5	●●● DISK	1	1	1	1	1	1	1	1
3-6	34-3-6	●●● HAIRSPRING	1	1	1	1	1	1	1	1
3-7	34-3-7	●● BRIDGE ASSEMBLY (Attaching Parts)	1	1	1	1	1	1	1	1
3-8	34-3-8	●● PIN, Taper	1	1	1	1	1	1	1	1
3-9	34-3-9	●● SCREW	1	1	1	1	1	1	1	1
3-10	34-3-10	●● SCREW	1	1	1	1	1	1	1	1
3-11	34-3-11	●● ROCKING SHAFT AND SECTOR ASSEMBLY	1	1	1	1	1	1	1	1
3-12	34-3-12	●●● SHAFT ASSEMBLY, ROCKING	1	1	1	1	1	1	1	1
3-13	34-3-13	●●● SPRING	1	1	1	1	1	1	1	1
3-14	34-3-14	●●● COMPENSATOR ASSEMBLY (Attaching Parts)	1	1	1	1	1	1	1	1
3-15	34-3-15	●●● NUT	1	1	1	1	1	1	1	1
3-16	34-3-16	●●● SCREW	1	1	1	1	1	1	1	1
3-17	34-3-17	●● SCREW, Pivot	1	1	1	1	1	1	1	1
3-18	34-3-18	●● PINION, Handstaff	1	1	1	1	1	1	1	1
3-19	34-3-19	●● SETTING ASSEMBLY, Handstaff Jewel (Attaching Part)	1	1	1	1	1	1	1	1
3-20	34-3-20	●● SCREW	1	1	1	1	1	1	1	1
3-21	34-3-21	●● BALANCE PLATE ASSEMBLY (With Pin, Link and Arm)	1	1	1	1	1	1	1	1
3-22	34-3-22	●●● BALANCE PLATE ASSEMBLY	1	1	1	1	1	1	1	1
3-23	34-3-23	●●● LINK, Bearing	1	1	1	1	1	1	1	1
3-24	34-3-24	●●● PIN, Bearing	1	1	1	1	1	1	1	1
3-25	34-3-25	●●● ARM, Calibration (Attaching Parts)	1	1	1	1	1	1	1	1
3-26	34-3-26	●● SCREW	1	1	1	1	1	1	1	1
3-27	34-3-27	●● SCREW	1	1	1	1	1	1	1	1
3-28	34-3-28	●● SCREW	1	1	1	1	1	1	1	1

PARTS LIST

FIGURE AND INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSEMBLY AND USABLE ON CODE							
			A	B	C	D	E	F	G	H
3-29	34-3-29	● ● DIAPHRAGM ASSEMBLY, Aneroid	1	1	1	1	1	1	1	1
3-30	34-3-30	● ● ● PLATE, Adjustment	2	2	2	2	2	2	2	2
3-31	34-3-31	● ● ● COMPENSATOR ASSEMBLY	1	1	1	1	1	1	1	1
3-32	34-3-32	● ● ● PLATE, Hold	1	1	1	1	1	1	1	1
		(Attaching Parts)								
3-33	34-3-33	● ● ● SCREW	1	1	1	1	1	1	1	1
3-34	34-3-34	● ● SCREW	1	1	1	1	1	1	1	1
3-35	34-3-35	● ● WASHER, Cone	4	4	4	4	4	4	4	4
3-36	34-3-36	● ● LINK	1	1	1	1	1	1	1	1
3-37	34-3-37	● ● SPRING	2	2	2	2	2	2	2	2
3-38	34-3-38	● ● PINION, Center	1	1	1	1	1	1	1	1

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